October 16, 2017

Ex Parte

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street SW
Washington, DC 20554

Re: *Promoting Investment in the 3550-3700 MHz Band,* **GN Docket No. 17-258, 12-354**

Dear Ms. Dortch:

On October 12, 201 Michael Calabrese, representing the Open Technology Institute at New America (OTI), spoke by telephone with Erin McGrath, Legal Advisor to Commissioner Michael O'Rielly, concerning the above-listed proceeding.

With respect to the draft NPRM proposing to re-open and revise the licensing rules for the new **Citizens Broadband Radio Service**, I noted that at least 9 out of every 10 companies and associations filing comments opposed the preclusive changes to the Priority Access License (PAL) rules proposed by CTIA and T-Mobile in their petitions for rulemaking.[1] Most commenters agreed that the particular PAL changes proposed by CTIA and T-Mobile should be rejected because they would refashion the rules for the exclusive benefit of one type of provider (a handful of wide-area cellular providers) to the detriment of thousands of other users and use cases, some of which would compete directly with CTIA's members.

I emphasized that PAL areas as large as counties or PEAs are neither necessary for mobile carriers, nor a good fit for this band. Relatively low power levels make it an inherently small cell band, particularly in urban areas. Mobile carriers will not use CBRS to extend the *coverage* of their networks, but solely to enhance the *capacity* of their networks in targeted high-traffic areas. This distinction between *spectrum for coverage* (which fits the traditional cellular licensing model) and *spectrum for capacity* in localized areas (which is the rationale for the PAL licensing scheme) is critical. The draft NPRM seems blind to the likelihood – or even the possibility – that the "5G" wireless ecosystem, just like the present 4G wireless ecosystem, will rely on a combination of centralized carrier networks (that are truly 'mobile') and a far larger number of complementary, high-capacity and customized networks deployed by individual business firms, property managers and individual households to meet their particular needs at a lower cost. Today Wi-Fi, deployed at the edge, makes mobile data more fast and affordable. In a 5G world, private, indoor

[1] *See OTI and Public Knowledge Reply Comments, GN Docket No. 12-354, (Aug. 8, 2017),* available at *https://ecfsapi.fcc.gov/file/10809019113786/OTI_PK_CBRS_ReplyComments_OppoPetnsRM_Final_080817.pdf*.

and customized small cell networks using LTE and possibly other technologies will further enhance the ecosystem.

This distinction between spectrum for coverage (traditional cellular networks) and spectrum for capacity (small cells, whether CBRS or Wi-Fi) is even more relevant for 5G when we consider that an increasing share of mobile device data traffic (currently over 80 percent) is consumed indoors, on a nomadic and not mobile basis. The benefits of "5G" – high throughput, low latency, and the ability to connect hundreds of different devices and sensors in a local area (e.g., IoT) – will be relevant almost entirely to *indoor* and *high-traffic* areas. Indoors – as well as on corporate, school and other campuses – three of the ingredients most essential to traditional cellular networks (backhaul, power and siting) will be entirely under the control of the property owner. The missing ingredient is spectrum access. CBRS, with its current combination of small area PALs and GAA, provides an opportunity for small operators, individual venues, and neutral host and private LTE deployments to use the same interoperable equipment to access to both spectrum with interference protection (PALs) and much greater capacity on a best efforts basis (GAA).

I noted that license areas as large as PEAs or counties are not necessary to stimulate investment in mid-band spectrum and could easily lead to both a narrowing and a net reduction in overall investment and use of the band by excluding localized uses. I summarized some of the use cases presented at OTI's recent policy forum on CBRS by General Electric (real-time data connectivity for critical infrastructure and industrial use), CBRE and the hospitality industry (neutral host LTE networks and customized private LTE networks), rural WISPs and other small ISPs (to address the rural broadband gap), and enterprise wireless equipment makers (e.g., for sporting arenas, such as NASCAR's recent trial using CBRS to broadcast 360-degree HD live video views from inside Richard Petty's race car). All of these localized uses of CBRS, to the extent they need or would benefit from PALs with interference protection, would be precluded under the Commission's draft NPRM.

Even if a carrier decides to use PALs to enhance capacity over an entire city (an enormous capital investment given the density of the low-power access points), there is no reason to secure a license that extends beyond the city, into exurbs, rural areas and neighboring counties, as PEAs would. The Los Angeles PEA covers not only the entire metro area, but also Riverside County and extends to the border of Nevada. It would be far easier for carriers to assemble larger contiguous areas by acquiring census tracts than it would be for hundreds or thousands of other potential users to either win a PEA or county license at auction. Subleasing small areas of spectrum from a big mobile carrier, through a secondary market transaction, is unrealistic both because of high transaction costs and because carriers have a disincentive to allow competitors with or substitutes for their services to access spectrum at a reasonable price.

Respectfully submitted,

/s/ *Michael Calabrese*
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cc: Erin McGrath